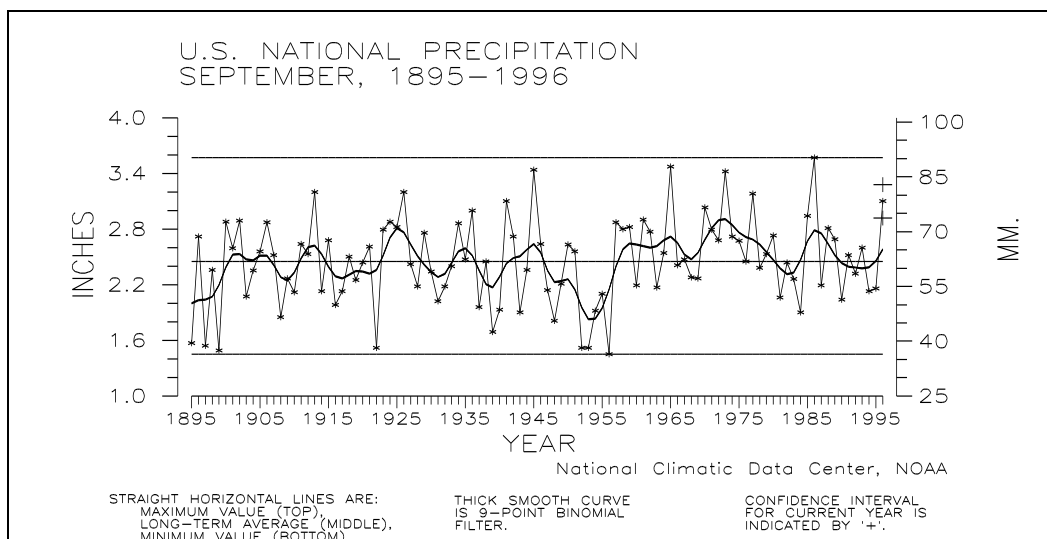
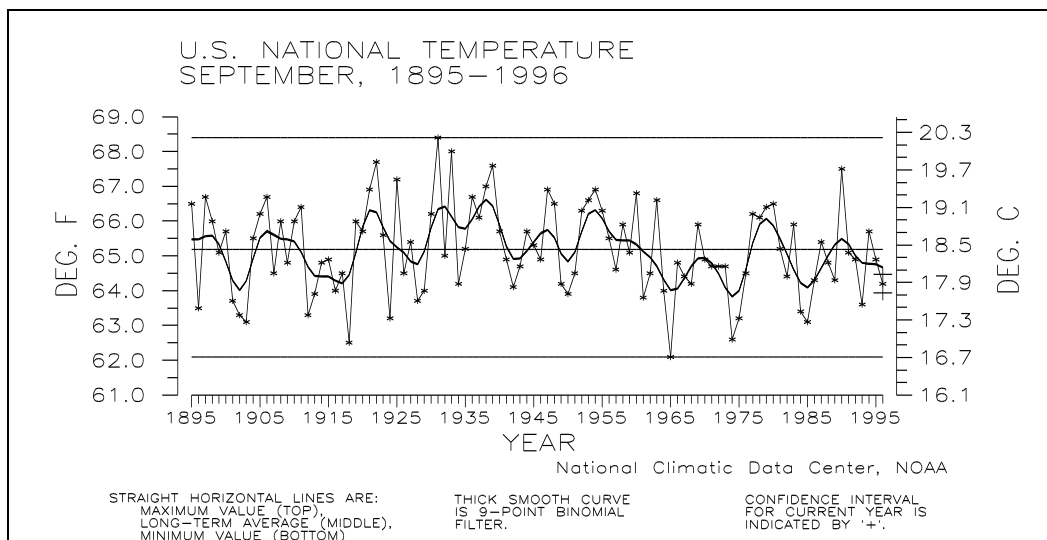


CLIMATE VARIATIONS BULLETIN



This CLIMATE VARIATIONS BULLETIN (CVB) is a preliminary report that puts current monthly climate anomalies into historical perspective using climate databases archived at the National Climatic Data Center (NCDC). It is issued on a monthly basis. Supplemental sections are included which address seasonal and annual perspectives, when appropriate.

Current data are based on preliminary reports from River Forecast Center stations and First and Second Order airport stations obtained from the National Weather Service (NWS) Climate Prediction Center (formerly, Climate Analysis Center), and preliminary tornado statistics obtained from the NWS National Severe Storms Forecast Center. **THE CURRENT DATA SHOULD BE USED WITH CAUTION.** These preliminary data are useful for estimating how current anomalies compare to the historical record, however the actual values and rankings for the current year will change as the final data arrive at NCDC and are processed.

The following NCDC datasets are used for the historical data: the climate division drought database (TD-9640), the hurricane datasets (TD-9636 and TD-9697), the tornado dataset (STORM DATA), and the monthly station dataset (LCD supplemental files). It should be noted that the climate division drought database consists of monthly data for 344 climate divisions in the contiguous United States. These divisional values are calculated from the 6000+ station Cooperative Observer network.

If you have access to the Internet, copies of the CVB are available via both the NCDC's World Wide Web (WWW) server and the NCDC's anonymous FTP server.

NCDC's WWW server

URL for the CVB: <http://www.ncdc.noaa.gov/publications/cvb/cvb.html>

NCDC's anonymous FTP server

Machine: <ftp.ncdc.noaa.gov>

Directory: [/pub/data/cvb](ftp://ftp.ncdc.noaa.gov/pub/data/cvb)

If you are a climate researcher and would like to order copies of the historical datasets used to make graphs of the type in this report, call 704-271-4994 or fax a letter to 704-271-4876 or mail a letter to the address given below, ATTN: Research User Services.

All other questions or requests for data should be made by calling 704-271-4800 or sending a fax to 704-271-4876 or by writing to:

National Climatic Data Center, NOAA
Federal Building
151 Patton Avenue, Room 120
Asheville, NC 28801-5001

If you use any of the information from this CVB, please identify "National Climatic Data Center, NOAA" as the source.

UNITED STATES SEPTEMBER CLIMATE IN HISTORICAL PERSPECTIVE

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Asheville, NC 28801 USA

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TABLE 1. PRECIPITATION AND TEMPERATURE RANKS, BASED
ON THE PERIOD 1895-1996. 1 = DRIEST/COLDEST,
102 = WETTEST/WARMEST FOR SEPTEMBER 1996,
102 = WETTEST/WARMEST FOR AUG-SEP 1996,
102 = WETTEST/WARMEST FOR APR-SEP 1996,
101 = WETTEST/WARMEST FOR OCT 1995-SEP 1996.

REGION	SEP 1996	AUG-SEP 1996	APR-SEP 1996	OCT 1995- SEP 1996
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PRECIPITATION:				
NORTHEAST	86	48	102	101
EAST NORTH CENTRAL	27	16	39	55
CENTRAL	76	38	95	79
SOUTHEAST	76	60	43	79
WEST NORTH CENTRAL	92	85	70	74
SOUTH	77	98	65	20
SOUTHWEST	96	75	60	15
NORTHWEST	88	87	98	97
WEST	47	29	70	55
NATIONAL	94	87	83	65
TEMPERATURE:				
NORTHEAST	59	67	43	22
EAST NORTH CENTRAL	62	66	20	9
CENTRAL	22	22	19	12
SOUTHEAST	37	17	30	9
WEST NORTH CENTRAL	48	68	49	36
SOUTH	11	9	52	45
SOUTHWEST	18	46	97	100
NORTHWEST	33	57	55	82
WEST	50	79	96	99
NATIONAL	22	40	52	49

TABLE 2. EXTREMES, 1961-90 NORMALS, AND 1996 VALUES FOR SEPTEMBER. IT SHOULD BE NOTED THAT THE 1996 VALUES WILL CHANGE WHEN THE FINAL DATA ARE PROCESSED.

REGION	PRECIPITATION (INCHES)				NORMAL PCPN	1996 PCPN
	DRIEST VALUE	YEAR	WETTEST VALUE	YEAR		
NORTHEAST	1.25	1914	6.68	1938	3.63	4.91
EAST NORTH CENTRAL	.95	1952	7.21	1986	3.60	2.60
CENTRAL	.70	1897	6.94	1926	3.63	4.11
SOUTHEAST	1.91	1919	9.26	1979	4.33	5.47
WEST NORTH CENTRAL	.47	1952	3.42	1973	1.61	2.43
SOUTH	.88	1956	6.88	1913	3.67	4.11
SOUTHWEST	.09	1956	3.07	1941	1.46	2.13
NORTHWEST	.12	1975	3.42	1959	1.33	1.92
WEST	.03	1974	2.00	1976	.62	.28
NATIONAL	1.45	1956	3.57	1986	2.63	3.10*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .18 INCHES

REGION	TEMPERATURE (DEGREES F)				NORMAL TEMP	1996 TEMP
	COLDEST VALUE	YEAR	WARMEST VALUE	YEAR		
NORTHEAST	56.2	1918	66.5	1961	59.8	60.9
EAST NORTH CENTRAL	53.5	1918	65.6	1931	58.8	60.0
CENTRAL	60.5	1918	73.6	1925	66.7	65.2
SOUTHEAST	68.9	1967	80.3	1925	73.2	72.7
WEST NORTH CENTRAL	47.4	1965	62.7	1897	56.8	57.0
SOUTH	67.7	1974	79.5	1911	73.6	71.9
SOUTHWEST	59.0	1912	67.3	1983	63.9	62.7
NORTHWEST	52.7	1926	62.7	1990	57.3	56.2
WEST	61.0	1986	69.9	1979	65.9	66.0
NATIONAL	62.1	1965	68.4	1931	64.8	64.2*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .3 DEG. F.

TABLE 3.

STATISTICS FOR SELECTED RIVER BASINS: PRECIPITATION RANKING FOR OCT-SEP 1995-96, WHERE RANK OF 1 = DRIEST, 101 = WETTEST, BASED ON THE PERIOD 1895 TO 1996, AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) DROUGHT, AND AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) WET CONDITIONS, AS OF SEPTEMBER 1996. RIVER BASIN REGIONS AS DEFINED BY THE U.S. WATER RESOURCES COUNCIL.

RIVER BASIN -----	PRECIPITATION RANK -----	% AREA DRY -----	% AREA WET -----
MISSOURI BASIN	67	.0%	49.2%
PACIFIC NORTHWEST BASIN	101	.0%	53.0%
CALIFORNIA RIVER BASIN	64	28.8%	21.3%
GREAT BASIN	43	26.8%	18.2%
UPPER COLORADO BASIN	22	25.0%	.0%
LOWER COLORADO BASIN	9	59.6%	.0%
RIO GRANDE BASIN	18	.0%	.0%
ARKANSAS-WHITE-RED BASIN	36	.0%	7.4%
TEXAS GULF COAST BASIN	14	.0%	.0%
SOURIS-RED-RAINY BASIN	56	.0%	34.5%
UPPER MISSISSIPPI BASIN	38	.0%	4.2%
LOWER MISSISSIPPI BASIN	32	.0%	.0%
GREAT LAKES BASIN	100	.0%	30.3%
OHIO RIVER BASIN	96	.0%	31.0%
TENNESSEE RIVER BASIN	78	.0%	.0%
NEW ENGLAND BASIN	101	.0%	56.2%
MID-ATLANTIC BASIN	101	.0%	53.1%
SOUTH ATLANTIC-GULF BASIN	76	.0%	.0%

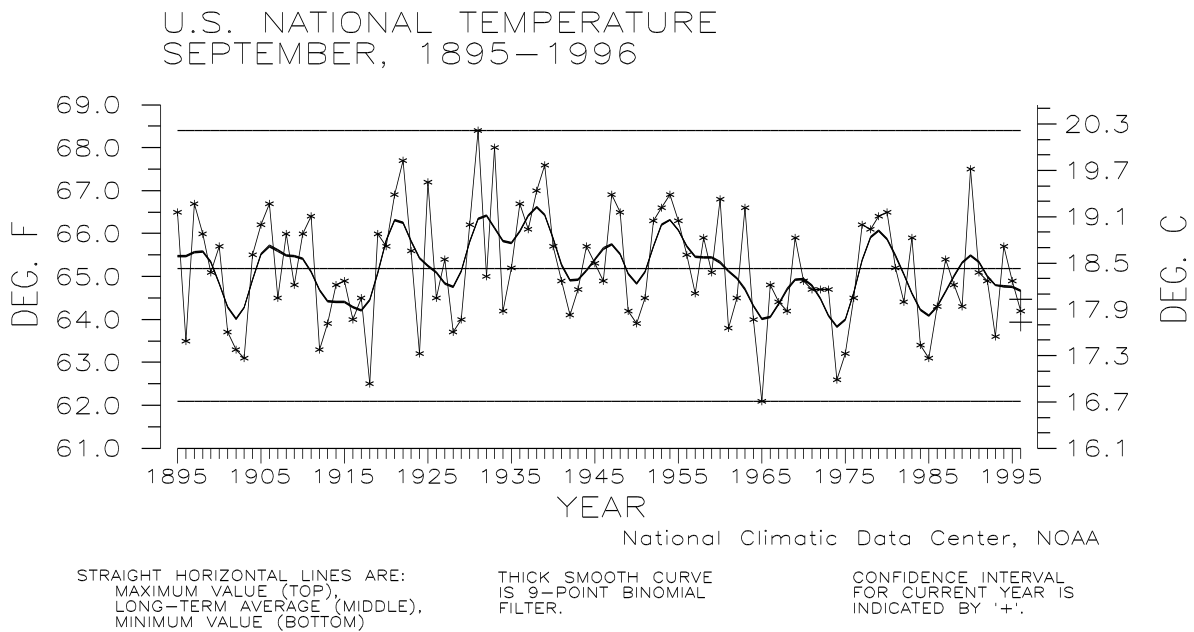


Figure 1: Preliminary data for September 1996 indicate that temperature averaged across the contiguous United States was below the long-term mean ranking as the 22nd coolest September since 1895. Over nine percent of the country averaged much cooler than normal while only one percent of the country averaged much warmer than normal.

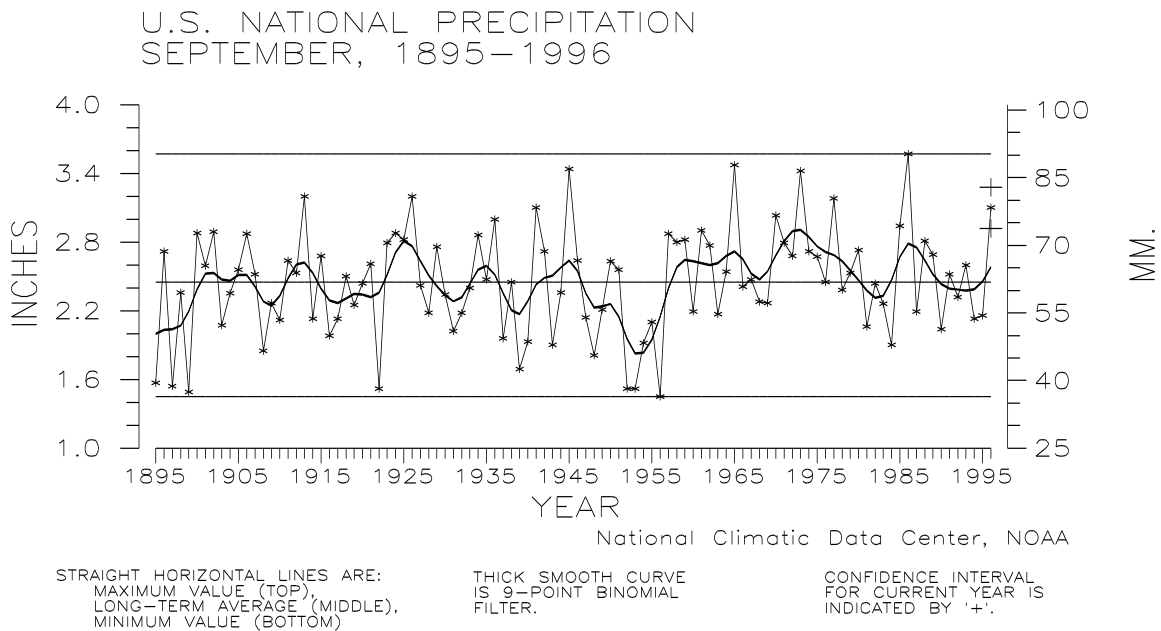


Figure 2: September 1996 was the ninth wettest such month since 1895. Over fifteen percent of the country experienced much wetter than normal conditions while none of the country was much drier than normal.

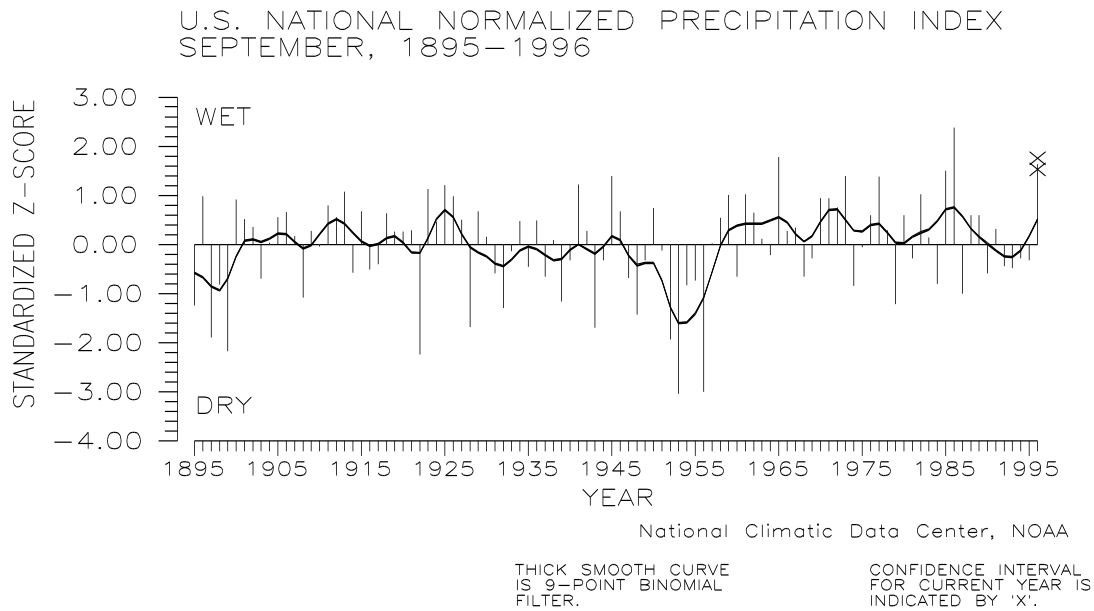


Figure 3: The preliminary national standardized precipitation index ranked September 1996 as the third wettest such month on record. This standardized z-score is estimated to be accurate to within 0.114 index units and its confidence interval is shown as an 'X'.

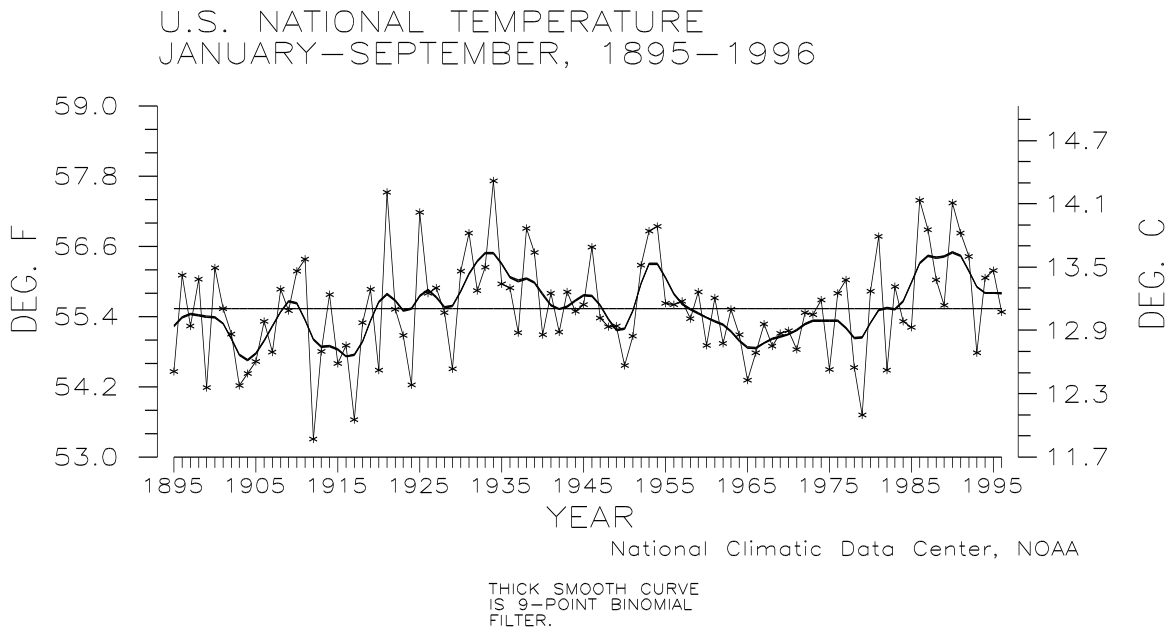


Figure 4: National averaged temperature for the nine-month period was at the long-term mean ranking as the 49th coolest January–September since 1895.

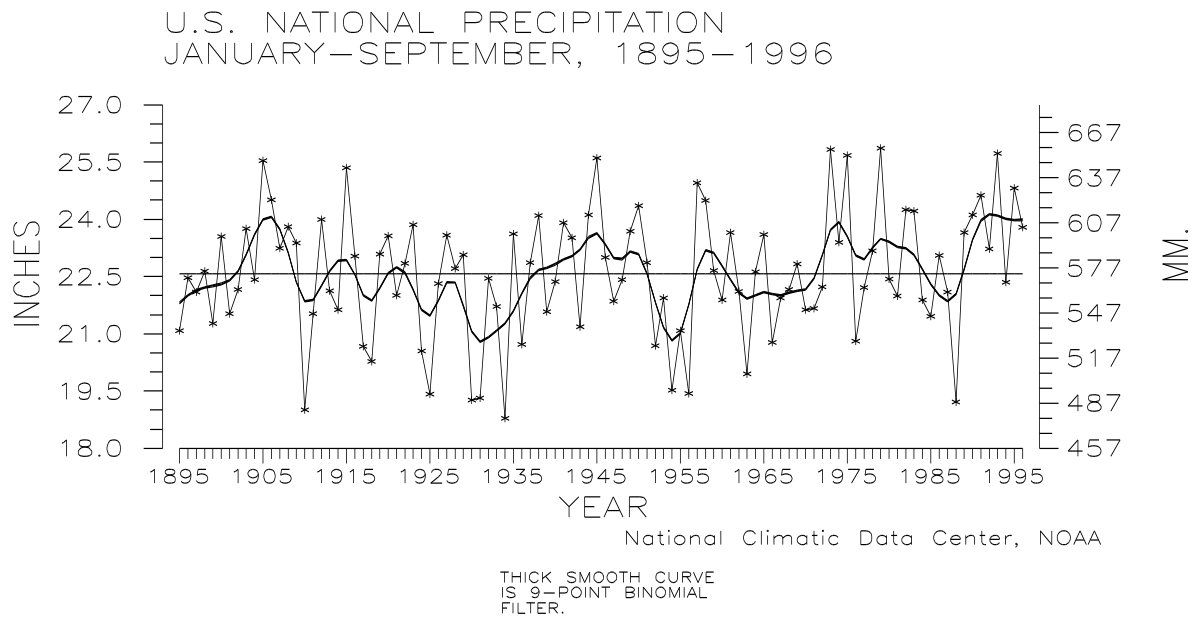


Figure 5: National averaged precipitation for the nine-month period ranked as the 23rd wettest such period since 1895. About 17 percent of the country averaged much wetter than normal while about four percent was much drier than normal for this period. Seven of the last eight such nine-month periods have ranked above to much above the long-term mean.

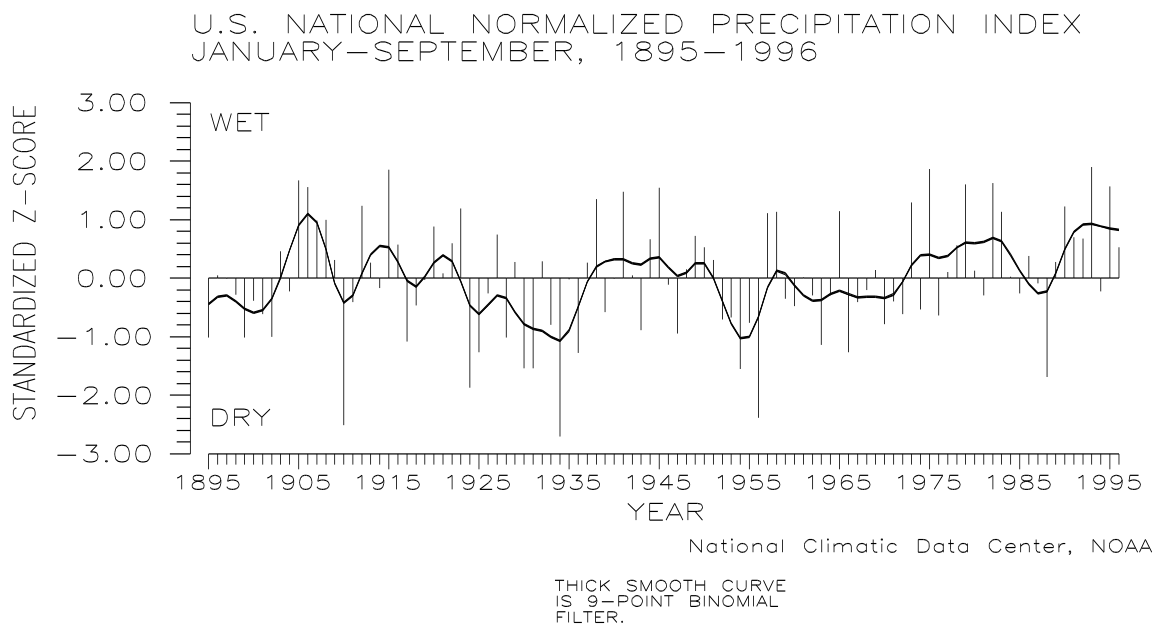
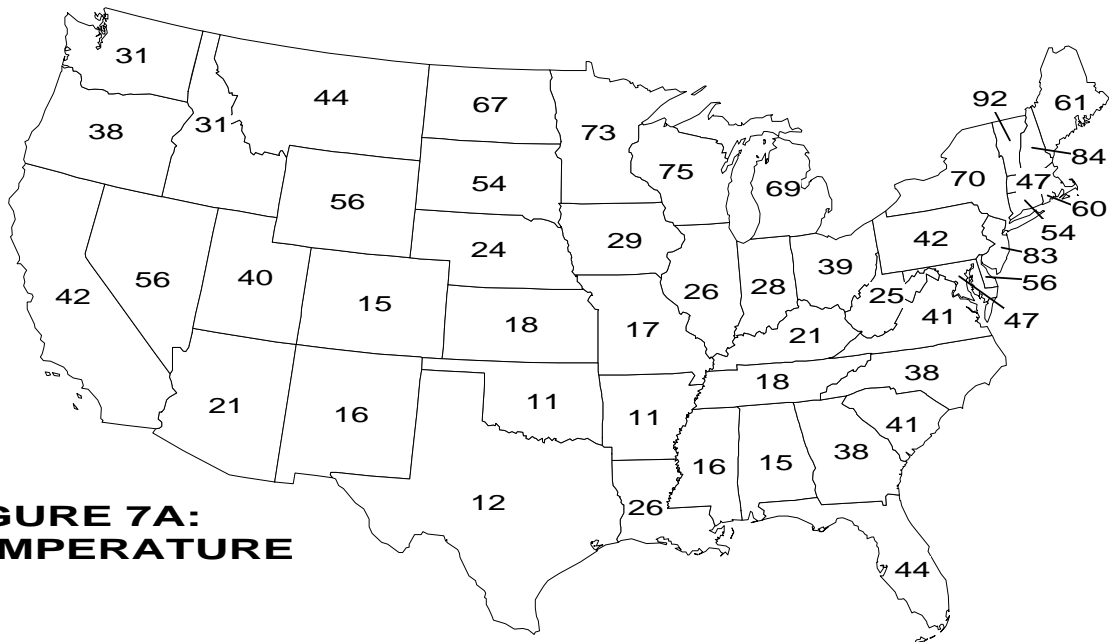
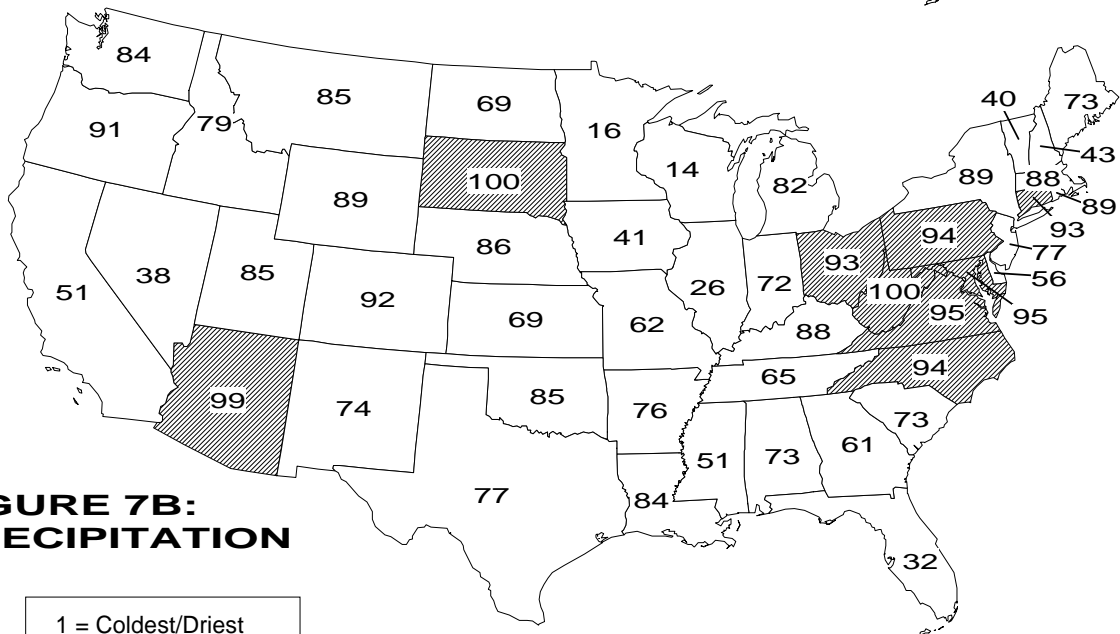


Figure 6: The preliminary national standardized precipitation index ranked the year-to-date as the 31st wettest such period on record since 1895.

SEPTEMBER 1996 STATEWIDE RANKS



**FIGURE 7A:
TEMPERATURE**



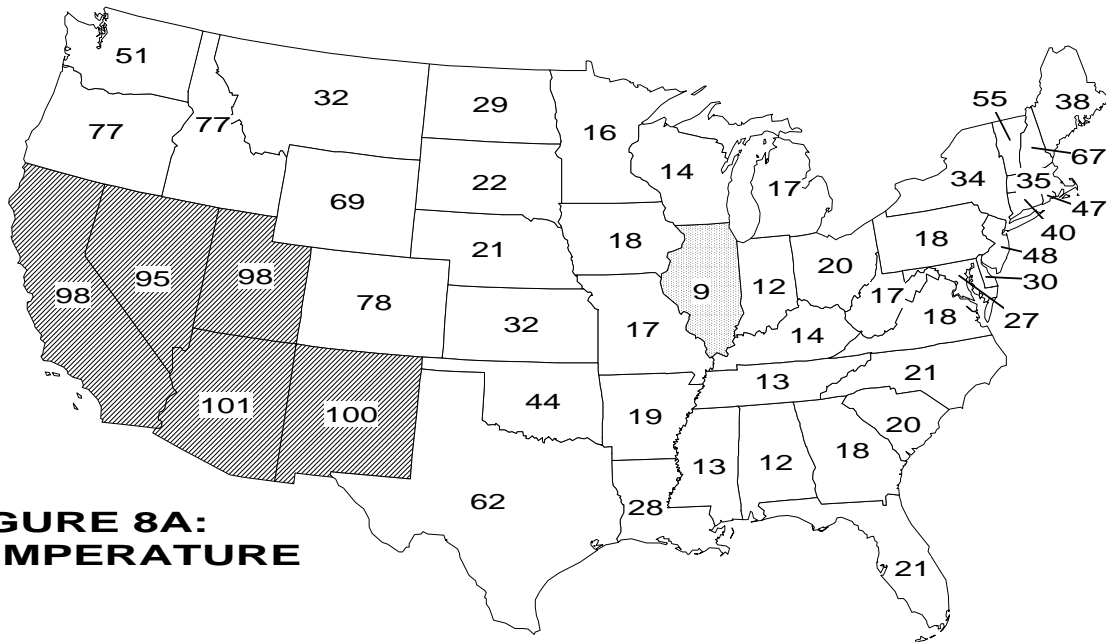
**FIGURE 7B:
PRECIPITATION**

1 = Coldest/Driest
102 = Warmest/Wettest

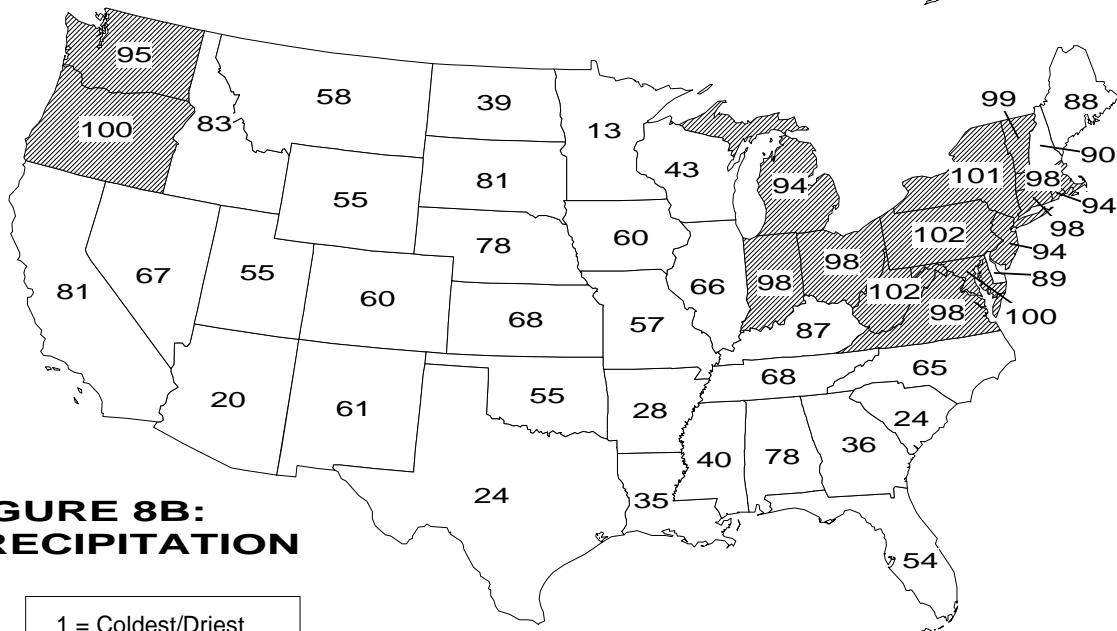
National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1996. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 93-102) are shaded.

JAN-SEP 1996 STATEWIDE RANKS



**FIGURE 8A:
TEMPERATURE**



**FIGURE 8B:
PRECIPITATION**

1 = Coldest/Driest
102 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1996. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 93-102) are shaded.

Figure 7A shows, in illustrative map form, the September 1996 temperature rankings for the 48 contiguous states. No state was within the top ten coolest while twenty ranked within the cool third. Comparatively, no state was within the top ten warmest category, while seven ranked within the warm third of the distribution.

September 1996 state categorical ranks for precipitation are shown in Figure 7B. Nine states, all but two in or near the mid-Atlantic region, ranked within the top ten wet portion of the historical distribution while an additional 25 states ranked within the wet third. Based on preliminary data, it was the third wettest September on record for South Dakota and West Virginia and the fourth wettest September since 1895 for Arizona. No state was within the top ten dry portion of the historical distribution while only four ranked within the dry third of the distribution. ***It should be noted that these September state categorical precipitation ranks are preliminary and should be used with considerable caution due to the high variability of precipitation on a small space and time scale.***

Figure 8A shows the year-to-date temperature rankings for the 48 contiguous states. The 1996 year-to-date is the ninth coolest such period on record for Illinois, the only state within the top ten cool portion of the historical distribution. Twenty-eight other states ranked within the cool third of the distribution. Five states (AZ, CA, NV, NM, & UT) ranked within the top ten warm portion of the distribution for the year-to-date, including the second warmest such period on record for Arizona. Four other states ranked within the warm third of the historical distribution.

January through September state categorical ranks for precipitation are shown in Figure 8B. Fifteen states ranked within the top ten wet portion of the distribution while nine others ranked within the wet third of the distribution. Preliminary data indicate the wettest January-September on record for West Virginia and Pennsylvania, and the second wettest such period on record for New York. These preliminary data also indicate that no state was within the top ten dry portion of the distribution and only five states ranked within the dry third of the ranking.

It should be emphasized that all of the temperature and precipitation ranks on these maps and in Table 1 are based on preliminary data. The ranks will change when the final data are processed.

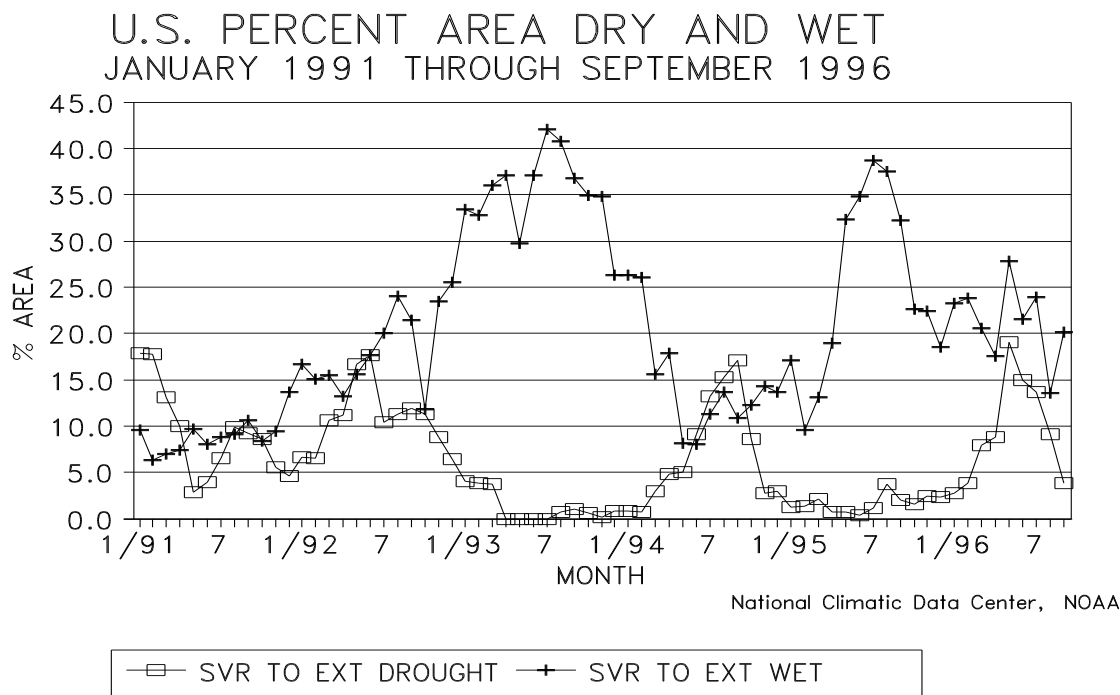


Figure 9: Long-term drought coverage (as measured by the Palmer Drought Index) during September decreased while the percent area of the country experiencing severe to extreme wetness increased. About 20 percent of the country experienced severe to extreme wetness while four percent was in severe to extreme drought by the end of the month. Core wet areas included portions of the Northeast and mid-Atlantic states, the upper Mid-West, and parts of the interior Northwest while dry areas included only portions of the Southwest..

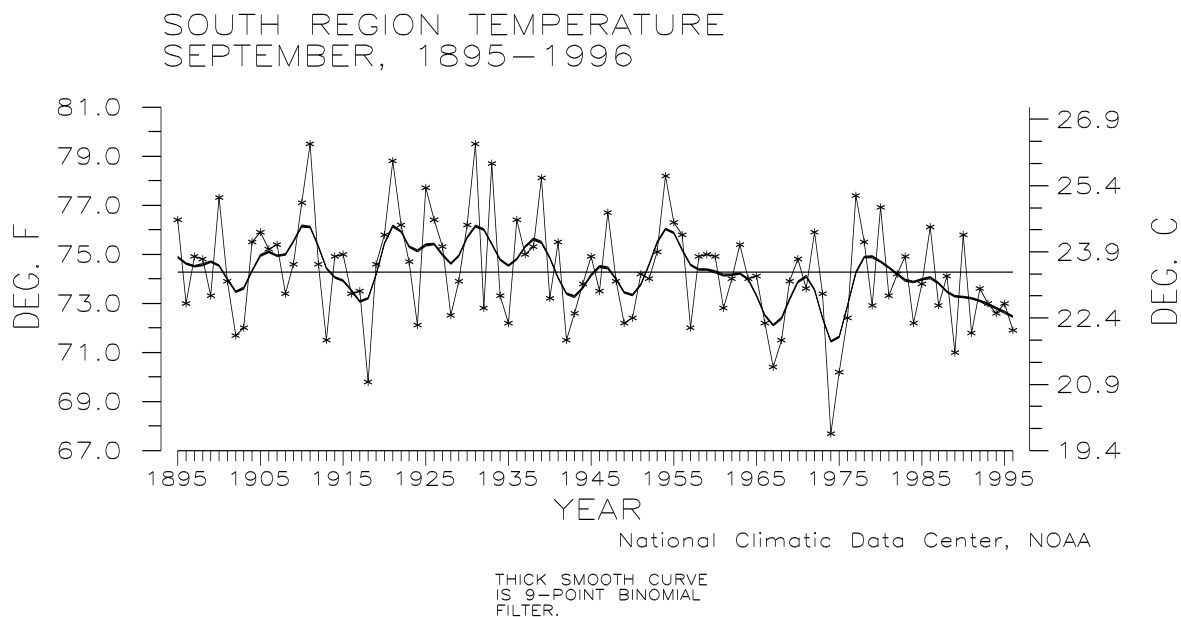


Figure 10: September 1996 was the 11th coolest such month since records began and the sixth consecutive such month of below normal temperatures for the South Region (Table 1).

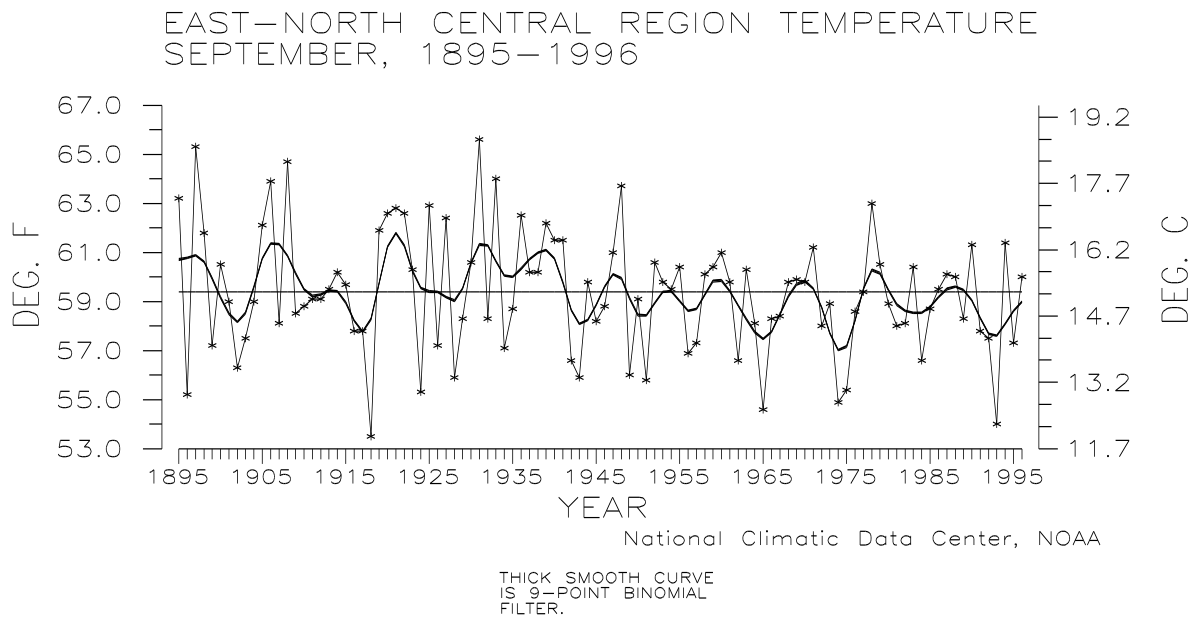


Figure 11: The region with the warmest ranking during the month of September was the East-North Central Region. Preliminary data indicate that September 1996 was the 41st warmest such month for the region since 1895 (Table 1).

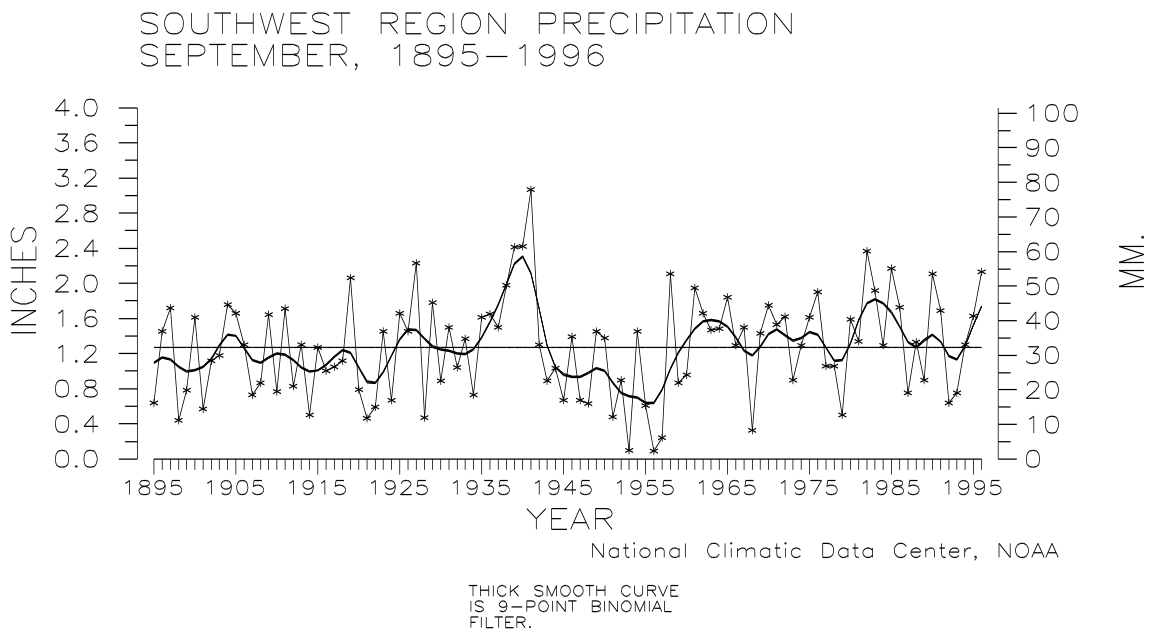


Figure 12: In contrast to drought earlier in the year, September 1996 was the seventh wettest such month since 1895 for the Southwest region. August-September 1996 was the 28th wettest such two-month period on record. April-September 1996 was the 43rd wettest such six-month period on record while October 1995-September 1996 was the 15th driest such 12-month period since 1895 (Table 1).

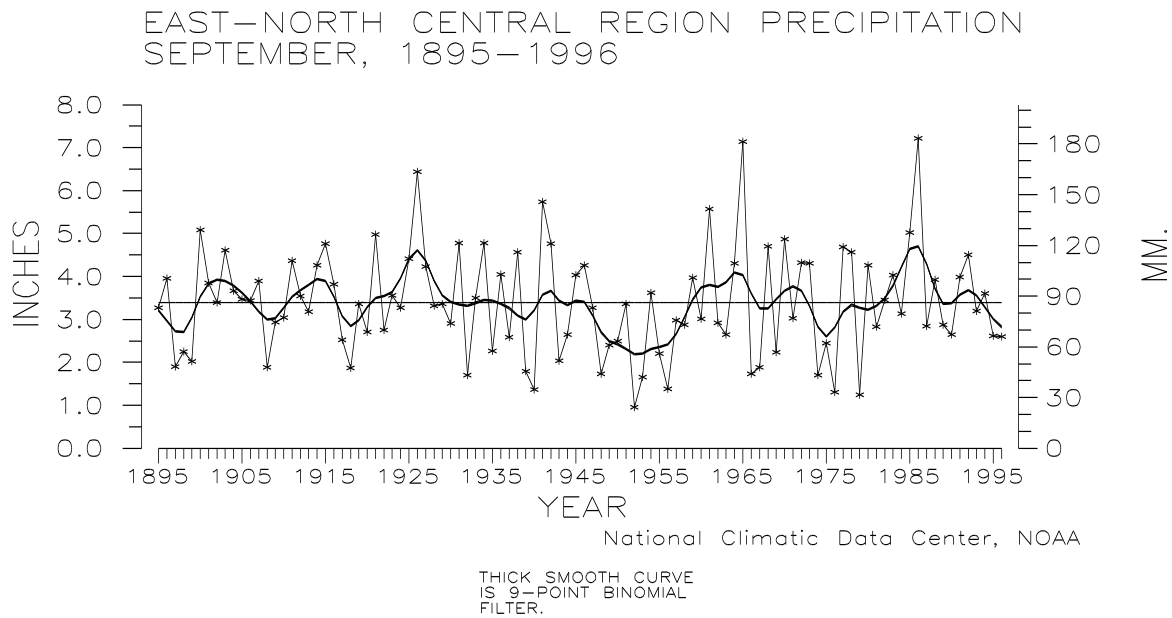


Figure 13: September 1996 was the 27th driest such month since 1895 for the East-North Central Region (Table 1).

NUMBER OF OBSERVED TORNADOES, U.S.A. SEPTEMBER AND JAN-SEP, 1953-96

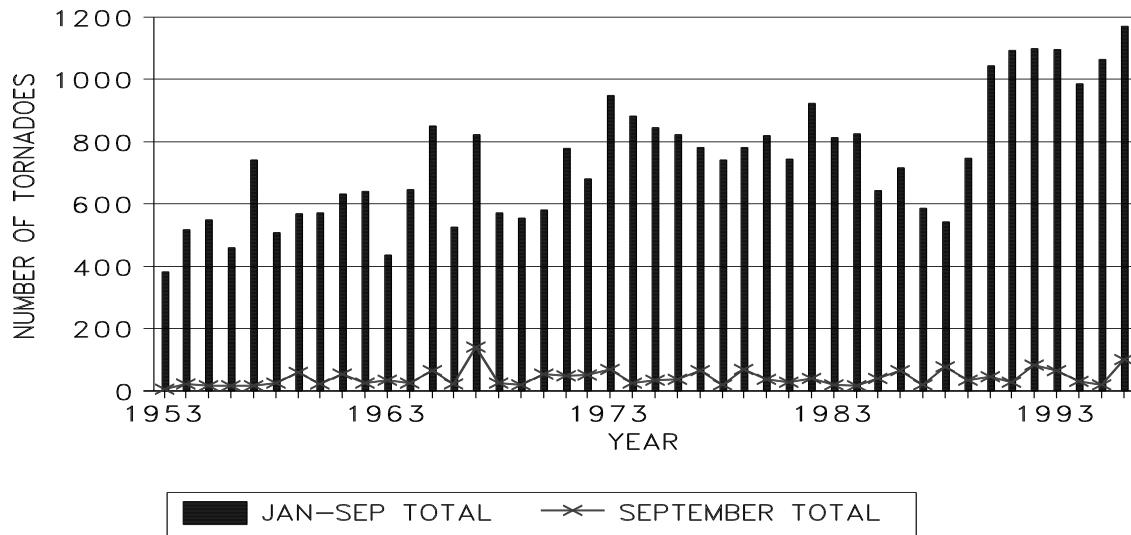


Figure 14: According to preliminary data from the National Weather Service, there were 98 tornadoes across the contiguous United States during September. The 1953-1995 average count is 39. For the year-to-date, a record 1170 tornadoes have been observed. The average count for the year-to-date is 734. It should be noted that the preliminary count is generally higher than the final count and that tornado observations have generally improved with time as better observing practices and instrumentation (especially weather radar and satellites) were utilized.